North Dakota
State Implementation Plan
Revision

(New Section)
Section 8.3.2 Continuous Opacity Monitoring for M.R. Young Station Unit 1 Main Boiler

Applicability: This SIP revision is only applicable to the existing Unit 1 boiler at the M.R. Young Station near Center, North Dakota

Background:

Minnkota Power Cooperative (Minnkota) currently operates Unit 1 of the M.R. Young Station near Center, North Dakota. Unit 1 was constructed in the late 1960's and came on-line in 1970. As such, Minnkota is required to continuously monitor the opacity of emissions from Unit 1 as mandated by 40 CFR 51, Appendix P, Section 2.2.1. On May 6, 1977, the Department modified the Permit to Operate for Unit 1 to require the continuous monitoring of opacity. Minnkota has continuously monitored opacity at Unit 1 since the compliance date of August 30, 1978.

In 2006, Minnkota entered into a Consent Decree with the Department and the U.S. Environmental Protection Agency to settle allegations of noncompliance under the Prevention of Significant Deterioration Program. As part of this settlement, Minnkota was required to control sulfur dioxide emissions from Unit 1. Minnkota has installed a wet scrubber which will treat all of the flue gas from Unit 1 and achieve 95% reduction of the inlet sulfur dioxide. However, the large amount of moisture from the scrubber has made monitoring of the opacity in accordance with the requirements of 40 CFR 51, Appendix P, Section 3.1.1 infeasible. Specifically, water droplets contained in the flue gas could potentially result in the monitor overstating the true opacity.

Unit 1 at the M.R. Young Station is subject to a 20% opacity limit under NDAC 33-15-03-01.2 except for one six-minute period per hour in which up to 40% opacity is allowed. Minnkota has been able to comply with the 20% opacity limit prior to the installation of the scrubber with limited exceedances. The addition of the wet scrubber will reduce visible emissions further. Minnkota will assure compliance with the opacity limit through the use of a continuous emissions monitor for particulate matter as well as periodic visible emissions readings using Test Method 9 of Appendix A to 40 CFR 60. Minnkota has developed a Compliance Assurance Monitoring (CAM) plan for particulate matter in accordance with 40 CFR 64. The CAM plan indicates that 20% opacity occurs with a filterable particulate matter emission rate of 0.062 $lb/10^6$ Btu.

In response to the installation of the scrubber, Minnkota has requested alternative monitoring procedures and requirements in accordance with 40 CFR 51, Appendix P, Section 6.1. The

Department believes that alternative monitoring procedures are warranted based on the large amount of moisture and the low stack gas temperature.

For the purpose of this SIP amendment, the PM CEMS is used only for demonstrating compliance with the visible emissions standard. This SIP amendment does not cover monitoring for demonstrating compliance with the particulate matter emission limit for this unit.

Alternative Monitoring Procedures and Requirements:

1. Monitoring Parameters:

Minnkota is required to continuously monitor the particulate matter emission rate. Installation and operation of particulate matter monitoring system must comply with the following:

a. The PM CEMS must be appropriate for the stack conditions;

b. The PM CEMS must be installed, operated and maintained in accordance with the manufacturer's recommendations, the applicable requirements of 40 CFR § 60.40 et seq. and the General Provisions at 40 CFR §§ 60.7 – 60.13;

c. Minnkota must certify the PM CEMS in accordance with performance specification 11 (PS-11) at 40 CFR Part 60, Appendix A; and

d. Quality assurance/quality control requirements must be performed in accordance with 40 CFR Part 60, Appendix F, Procedure 2.

Minnkota shall conduct Method 9 (M9) visible emissions (opacity) readings in accordance with the following:

a. Minnkota will take weekly M9 readings, for at least one hour each week, for six consecutive weeks during regular source operation;

b. If continuous compliance with opacity is demonstrated for six consecutive weeks, Minnkota can begin taking monthly M9 readings;

c. Monthly M9 readings must be taken for at least two hours each consecutive month but may be performed in no less than 30-minute intervals during regular source operation; and

d. If excess emissions of opacity (greater than 20% opacity) are identified, Minnkota must revert back to weekly M9 readings for six consecutive weeks, conducted in accordance with (a) above, or until continuous compliance with the opacity limit is demonstrated, whichever is longer.

2. Frequency of Monitoring:

Filterable PM – Continuous
Visible Emissions – Monthly unless exceedances are identified

3. Requirements:

Filterable PM Emission rate shall not exceed 0.062 lb/10^6 Btu (10-minute average)
Visible Emissions shall not exceed 20% (6-minute average)

4. Recordkeeping:

Minnkota shall keep records of all PM and visible emissions readings. All records shall be kept for at least five years.

5. Reporting:

Minnkota shall submit a quarterly excess emissions report which includes any excess emissions measured by the PM CEMS and visible emissions readings. The report shall also list any time period monitoring is not conducted as outlined in this section. Minnkota shall also submit an annual certification indicating compliance with the visible emissions limit.

Public Hearing_____
(date)

Finalized_____
(date)